# UNITED STATES PATENT AND TRADEMARK OFFICE

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| EXAMINER |
|---|
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| ART UNIT | PAPER NUMBER |
|---|---|
| 2637 | |

DATE MAILED: 12/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☒ Responsive to communication(s) filed on *13 October 2005*.

2a)☒ This action is **FINAL**.     2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *  c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

# DETAILED ACTION

1.      This Office Action is responsive to the Remarks/Amendment filed on 10/13/2005.

2.      Applicant's remarks, see pages 9-12, filed 10/13/2005, with respect to the rejection(s) of

claim(s) 1, 8, 10, 16, 23 and 27 under 35 USC 102 (b) and 35 USC 103 (a) have been fully

considered.  However, applicant's amendment of claims 8, 10, 13, 16 and 27, does not place the

application in condition for allowance.  The rejection follows:

## *Claim Rejections - 35 USC § 103*

3.      The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains.  Patentability shall not be negatived by the
> manner in which the invention was made.

4.      Claims 1-7, 23-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rogard

(US Patent 4,718,066) in view of Palm (US Patent 6,694,470) and further in view of Ghirnikar et

al (USP 6,381,241).

Regarding claims 1, 2, 23, 24, 26 and 27, Rogard discloses a data communications

system and a method for transmission of signals from a transmitter to a receiver, the transmitter

comprising:

the transmitter end applying to a plurality of original data bits that are to be transmitted to the

receiving end an encoding algorithm that produces overhead bits (encoding means for encoding a

message in sets of data blocks (plurality of data bits), each block including additional check

symbols enabling detection and correction within the block including redundant data blocks

(produce overhead bits) (col. 3, lines 20-35). Rogard however, does not explicitly show

transmitting end refraining from transmitting the overhead bits until the transmitting end receives

an indication of error in reception from the receiving end.

Palm in a similar field of endeavor discloses,

transmitting end refraining from transmitting the overhead bits until the transmitting end receives

an indication from the receiving end that the original data have not been correctly received at the

receiving end (col. 3, lines 23-51, 48-67; col. 15, lines 26-32). It would have been obvious to a

person of ordinary skill in the art the time the invention was made to provide a similar

arrangement as taught by Palm in the system of Rogard because it can minimize retransmission

of signals and conserve transmission power and time. The combined art of Rogard and Palm

however, does not explicitly show the transmitting end transmitting the original data bits without

the overhead bits in a first transmission to the receiving end. Ghirnikar in a similar field of

endeavor discloses a method and an apparatus in a wireless communication transmitter

transmitting the original data bits without the overhead bits in a first transmission to the

receiving end and retransmitting the original data bits (fig. 6, elements 605-640; col. 9, lines 41-

65). It would have been obvious to a person of ordinary skill in the art the time the invention

was made to provide transmission of original data bits without the overhead bits as taught by

Ghirnikar in the combined art of Rogard and Palm because by transmitting original data

(payload) without overhead in a first transmission the fragmentation of signal can be detected

early on in the communication process minimizing transmission power and enhance the

handshake between the transmitter and receiver.

Regarding claims 3, 4, 7, 29, 31 and 32, Rogard and Palm combined discloses all

limitations of the claim. Rogard-Palm combination however, is not explicit regarding receiving

end combining a received version of the original data bits and a received version of the overhead

bits to produce a combined set of received bits and the receiving end applying to the combined

set of received bits a decoding algorithm that corresponds to said encoding. Ghirnikar in a

similar field of endeavor discloses receiving end combining a received version of the original

data bits and a received version of the overhead bits to produce a combined set of received bits

and applying it to a FEC decoding algorithm that corresponds to said encoding process (col. 9,

lines 28-40, 55-67; col. 11, lines 20-25). It would have been obvious to one of ordinary skill in

the art the time the invention was made to combine received original data bits and overhead bits

to produce a combined set of received bits and apply it to a decoding process as taught by

Ghirnikar in the combined art of Rogard and Palm because by combining and decoding together

the received bits, reproduction of the original data bits ca be adequately achieved.

As per claims 6, 26 and 30 Rogard and Palm combined discloses all limitation of the

claim. Rogard and Palm combination however, is not explicit about the receiving end applying

an error detection procedure to a result of decoding to determine whether decoding has resulted

in original data bits and transmit to the transmitting end a request for retransmission of the

original data. Ghirnikar in a similar field of endeavor discloses receiving end applying an error

detection procedure to a result of decoding to determine whether decoding has resulted in

original data bits and transmit to the transmitting end a request for retransmission of the original

data (col. 19, lines 28-67; col. 13, lines 30-40). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the receiving end apply an error detection procedure to a result of decoding to determine whether decoding has resulted in original data bits and transmit to the transmitting end a request for retransmission of the original data as taught by Ghirnikar in the combined art of Rogard and Palm because detection of errors early on in the process can mitigate the transmission and retransmission of message queuing and maximize channel usage.

Regarding claims 5 and 25 Rogard, Palm, Ghirnikar disclose all limitations of the claim. The combination however, is not explicit regarding Viterbi encoding and decoding algorithms. As best understood by the examiner, the Viterbi encoding and decoding is conventionally known and expected in the art of signal communication. Therefore, it would have been obvious to a person of ordinary skill in this art to include Viterbi encoding and decoding algorithms to provide efficient and reliable data reception and transmission in the combined arts.

As per claim 28, Rogard, Palm, Ghirnikar combination discloses every feature of the claimed invention except a convolutional encoding algorithm. Official Notice is taken that both the concept and the advantages of using convolutional encoding algorithm are conventionally well known and expected in the art. Therefore it would have been obvious to a person of ordinary skill in this art to include convolution encoding algorithm because it can provide reliable encoding of signals in the combined art of Rogard, Palm and Ghirnikar.

## *Claim Rejections - 35 USC § 102*

5.      The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6.      Claims 8, 9, 10, 11, 13-15 and 16-22 are rejected under 35 U.S.C. 102(e) as being

anticipated by Ghirnikar (USP 6,381,241).

Regarding claim 8, Ghirnikar discloses a method and an apparatus for communicating

data from a transmitting end to a receiving end comprising:

the receiving end receiving from the transmitting end a first transmission including original data

bits without overhead bits produced at the transmission end by operation of an encoding

algorithm applied to the original data bits (col. 5, lines 13-20);

the receiving end determining whether the original data bits have been received correctly and

responsive to a determination that the original data bits have not been received correctly, the

receiving end transmitting to the transmitting end a request for transmission of the overhead bits

(abstract; col. 5, lines 13-42).

As per claim 9, Ghirnikar discloses every feature of the claimed invention except a

convolutional encoding algorithm.  Official Notice is taken that both the concept and the

advantages of using convolutional encoding algorithm are conventionally well known and

expected in the art.  Therefore it would have been obvious to a person of ordinary skill in this art

to include convolution encoding algorithm because it can provide reliable encoding of signals in

the art of Ghirnikar

Regarding claim 10, Ghirnikar discloses a data communication apparatus comprising:

an input for receiving original data bits that is to be transmitted via a communication channel to

another data communication apparatus (abstract; col. 5, lines 14-21, 23-42);

an encoder coupled to said input for applying to the original data bits an encoding algorithm that

produces overhead bits (col. 6, lines 27-36);

an output for providing bits that are to be transmitted across the communication channel

(abstract; col. 5, lines 35-42); and

a data path coupled between said encoder and said output, said data path receiving information

from another data communication apparatus, said data path selecting one of the original data bits

and the overhead bits in response to a first information, said data path selecting the other of the

original data bits and the overhead bits in response to a second information to be provided to said

output for transmission across the communication channel to another data communication

apparatus (col. 5, lines 14-42; col. 6, lines 53-65; col. 9, lines 35-67).

Regarding claim 11, Ghirnikar discloses register (memory) to correctly receive and store

corrected data block (col. 3, lines 57-66).

7.      Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghirnikar (USP

6,381,241) in view of Jalali et al (US Patent 6,694,469).

Regarding claim 13, Ghirnikar discloses

first information includes an acknowledgement and said-second information includes a negative

acknowledgement indicating that an earlier transmission has not been received correctly at said

another communication apparatus, said data path responsive to the negative acknowledgement

for changing its selection from one of the original data bits and the overhead bits to the other of

original data bits and the overhead bits (col. 5, lines 15-43).

Regarding claim 14 Ghirnikar discloses a wireless communication apparatus (abstract;

col. 4, lines 18-32, 55-62).

As per claim 15, Ghirnikar discloses every feature of the claimed invention except a

convolutional encoding algorithm. Official Notice is taken that both the concept and the

advantages of using convolutional encoding algorithm are conventionally well known and

expected in the art. Therefore it would have been obvious to a person of ordinary skill in this art

to include convolution encoding algorithm, because it can provide reliable encoding of signals in

Ghirnikar.

Regarding claim 16, Ghirnikar discloses a data communication apparatus comprising:

an input for receiving a received version of original data bits in response to a first information

without overhead bits produced at another data communication apparatus by operation of an

encoding algorithm applied to original bits, input receiving overhead bits in response to a second

information, said original bits and overhead bits transmitted over a communication channel by

said another data communication apparatus (abstract; col. 5, lines 14-21, 23-42);

an error detector coupled to said input for determining whether the received version of the

original data is correct (col. 6, lines 16-50); and

a controller coupled (processor) to said error detector responsive to a determination that the

received version of the original data bits is correct for providing first information to another data

communication apparatus and responsive to a determination that the received version of the

original data is incorrect for providing second information to another data communication

apparatus (col. 5, lines 15-42).

Regarding claim 17, Ghirnikar discloses a received version of the overhead bits as

transmitted from said another data communication apparatus said controller coupled to said input

for applying to the received version of the overhead bits a mapping operation which if the

overhead bits have been received correctly at the receiving end will result in the original data

bits, said error detector coupled to said controller for applying an error detection procedure to the

result of the mapping operation to determine whether the mapping operation has resulted in the

original data bits (col. 9, lines 28-40, 55-67; col. 11, lines 20-25).

As per claims 18 and 20, Ghirnikar discloses the apparatus including a decoder coupled

to said input and said controller said controller responsive to a determination by said error

detector that the mapping operation has not resulted in the original data bits for signaling said

decoder to apply to the received version of the original data bits and the received version of the

overhead bits a decoding algorithm that corresponds to said encoding: algorithm (col. 6, lines 53-

67; col. 7, lines 1-12).

Regarding claim 19, Ghirnikar discloses register (memory) to correctly receive and store

corrected data block (col. 3, lines 57-66).

Regarding claim 21, Ghirnikar disclose all limitations of the claim except Viterbi

encoding and decoding algorithms. As best understood by the examiner, the Viterbi encoding

and decoding is conventionally known and expected in the art of signal communication.

Therefore, it would have been obvious to a person of ordinary skill in this art to include Viterbi

encoding and decoding algorithms to provide efficient and reliable data reception and

transmission in the art of Ghirnikar.

8.      Regarding claim 12, Ghirnikar discloses all claimed limitation except a selector coupled

between buffer and output. Jalali in a similar field of endeavor discloses data path include a

selector coupled between buffer and output for obtaining one of the original data bits and the

overhead bits from buffer to be provided to output for transmission (col. 4, lines 13-16, 27-33).

It would have been obvious to a person of ordinary skill in this art at the time the invention was

made to include a selector for selecting the original and overhead bits as taught by Jalali in the

system of Rogard because it can provide the desired bits to the output for maximized

transmission of signals.


*Conclusion*

9.      Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

10.     Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Qutub Ghulamali whose telephone number is (571) 272-3014.

The examiner can normally be reached on Monday-Friday from 8:00AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay

Patel can be reached on (571) 272-2988. The fax phone number for the organization where this

application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application

Information Retrieval (PAIR) system. Status information for published applications may be obtained

from either Private PAIR or Public PAIR. Status information for unpublished applications is available

through Private PAIR only. For more information about the PAIR system, see http://pair-

direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

QG
December 27, 2005.

**JAY K. PATEL**
**SUPERVISORY PATENT EXAMINER**